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SHIMIZU PATENT OFFICE

## CLAIMS

1. A polypeptide that suppresses neuronal death associated with Alzheimer's disease having an amino acid sequence of Formula(I):

Pro-Xn<sub>1</sub>-(Cys/bXaa) - (Leu/Arg) -Xn<sub>2</sub>-Leu-Thr-(Gly/Ser) -Xn<sub>3</sub>-Pro (I) wherein "Cys/bXaa" indicates Cys or a basic amino acid; "(Leu/Arg)" indicates Leu or Arg; "(Gly/Ser)" indicates Gly or Ser; and Xn<sub>1</sub>, Xn<sub>2</sub>, and Xn<sub>3</sub> independently indicate arbitrary amino acid sequences not more than 10 residues in length, respectively.

- 2. A polypeptide according to (a) or (b) shown below:
- (a) a polypeptide having an amino acid sequence selected from the group of SEQ ID NOs: 5 to 8, 10, 12, 13, 21 to 24, 26 to 29, 32, 33, 37 to 40, 46, 48, 54, and 60;
- (b) a polypeptide that suppresses neuronal death associated with Alzheimer's disease having an amino acid sequence selected from the group consisting of SEQ ID NOs: 5 to 8, 10, 12, 13, 21 to 24, 26 to 29, 32, 33, 37 to 40, 46, 48, 54, and 60, wherein one or more amino acids have been substituted, deleted, inserted, and/or added.
- 3. The polypeptide of claim 2, which is used to suppress neuronal death.
- 4. A fusion polypeptide comprising the polypeptide of any of claims 1 to 2 fused with other polypeptides.
  - 5. A DNA encoding the polypeptide of any one of claims 1 to 25 4.
    - 6. A vector into which the DNA of claim 5 is inserted.
    - 7. A host cell retaining the vector of claim 6.
    - 8. A method for producing the polypeptide of any one of claims 1 to 4, comprising the steps of culturing the host cell of claim 7, and recovering the expressed polypeptide from the host cell or culture supernatant thereof.
    - 9. A method for suppressing neuronal death comprising the step of contacting a neuron with the polypeptide of any one of claims 1 to 4.
    - 10. A method for detecting a cell death suppressing activity of the polypeptide of any one of claims 1 to 4, comprising the steps

of:

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- (a) inducing cell death in the presence of the polypeptide of any one of claims 1 to 4; and
  - (b) detecting level of cell death.
- 11. A method for detecting the effect of a chemical compound on neuronal death suppressing activity of a polypeptide of any one of claims 1 to 4, comprising the steps of:
- (a) inducing neuronal death in the presence of a test compound and the polypeptide of any one of claims 1 to 4; and
  - (b) detecting the level of neuronal death.
- 12. A method of screening for a chemical compound that regulates the neuronal death suppressing activity of the polypeptide of any one of claims 1 to 4, comprising the steps of:
- (a) inducing neuronal death in the presence of a test sample and the polypeptide of any one of claims 1 to 4;
  - (b) detecting the level of neuronal death; and
  - (c) selecting the compound that enhances or suppresses neuronal death.
- 13. A pharmaceutical composition comprising as the effective component the polypeptide of any one of claims 1 to 4.
- 14. The pharmaceutical composition of claim 13, wherein said composition is a neuronal death suppressant.
- 15. The pharmaceutical composition of claim 13, which is used to prevent or treat diseases that are accompanied by neurodegeneration.
- 16. The pharmaceutical composition of claim 13, which is used to prevent or treat Alzheimer's disease.
- 17. An antibody that binds to the polypeptide of any one of claims 1 to 3.
- 18. A DNA for detecting or manipulating DNA encoding the polypeptide of any one of claims 1 to 4, wherein the DNA comprises at least 15 nucleotides that are complementary to a DNA consisting of the nucleotide sequence of SEQ ID NO: 4 or to a complementary strand thereof.
- 35 19. A method of screening for a chemical compound that binds to the polypeptide of any one of claims 1 to 4, comprising the steps

of:

(a) contacting a test sample with the polypeptide of any one of claims 1 to 4;

(b) detecting the binding activity between the test sample and the polypeptide; and

(c) selecting the compound that has the activity to bind to the polypeptide.